

IN THE CLAIMS:

- 1 1. (Currently Amended) A method for detecting leaked buffer writes between a first
2 consistency point and a second consistency point, the method comprising:
3 receiving a write operation, ~~wherein the write operation identifies~~ directed to a
4 file for the write operation to be performed on;
5 ~~determining that a volume storing the file has buffer leakage detection activated;~~
6 creating a data buffer associated with the write operation; and
7 in response to determining the volume has buffer leakage detection activated,
8 writing a buffer check control structure to a raw data buffer associated with the data
9 buffer.

- 1 2. (Currently Amended) The method of claim 1 wherein the step of creating the data
2 buffer further comprises: ~~the step of~~
3 creating the buffer check control structure and the raw data buffer.

- 1 3. (Previously Presented) The method of claim 2 wherein the buffer check control struc-
2 ture comprises a pointer to the raw data buffer.

- 1 4. (Currently Amended) The method of claim 1 wherein the step of writing the buffer
2 check control structure to the raw data buffer further comprises ~~the steps of:~~
3 creating the buffer check control structure; and
4 overwriting a portion of the raw data buffer with the buffer check control struc-
5 ture.

- 1 5. (Currently Amended) The method of claim 1 wherein the step of writing the buffer
2 check control structure to the raw data buffer further comprises ~~the steps of:~~
3 creating the buffer check control structure; and

4 associating the buffer check control structure to the raw data buffer in a contigu-
5 ous block of memory.

1 6. (Original) The method of claim 4 wherein the buffer check control structure com-
2 prises:

3 one or more magic numbers; and
4 a consistency point number.

1 7. (Original) The method of claim 6 wherein the one or more magic number comprises a
2 64-bit value.

1 8. (Original) The method of claim 6 wherein one or more magic number values com-
2 prises two 32-bit values.

1 9. (Original) The method of claim 6 wherein the consistency point number identifies a
2 current consistency point.

1 10. (Original) The method of claim 6 wherein the consistency point number comprises a
2 32-bit value.

1 11. (Currently Amended) A method for detecting leaked buffer writes between a first
2 consistency point and a second consistency point, the method comprising steps of:
3 selecting a data buffer;
4 determining if the selected data buffer includes a buffer check control structure;
5 determining, in response to the selected data buffer including a buffer check con-
6 trol structure, if a consistency point number within the buffer check control structure is
7 correct; and
8 performing, in response to determining that the consistency point number within
9 the buffer check control structure is correct, a write operation of a file system buffer.

1 12. (Original) The method of claim 11 wherein the step of determining if the data buffer
2 comprises a buffer check control structure further comprises a step of determining if one
3 or more magic values are within the data buffer.

1 13. (Original) The method of claim 12 wherein one or more magic values comprise a 64-
2 bit magic number.

1 14. (Original) The method of claim 12 wherein one or more magic values further com-
2 prises two 32-bit magic numbers.

1 15. (Currently Amended) The method of claim 11 wherein the step of determining if the
2 consistency point number is correct further comprises: ~~the step of~~
3 determining if the consistency point number within the buffer check control struc-
4 ture equals a consistency point number identifying a current consistency point.

1 16. (Currently Amended) The method of claim 11 wherein the step of performing a write
2 operation further comprises: ~~a step of~~
3 writing a set of raw data within the data buffer to a disk.

1 17. (Original) The method of claim 16 wherein the raw data comprises the buffer check
2 control structure.

1 18. (Currently Amended) The method of claim 16 wherein the step of performing the
2 write operation further comprises: ~~a step of~~
3 removing the buffer check control structure from the raw data before writing the
4 file system buffer to disk.

1 19. (Currently Amended) The method of claim 16 wherein the step of performing the
2 write operation comprises: ~~the step of~~
3 ~~.....~~ writing only the raw data within the file system buffer to disk.

1 20. (Currently Amended) A system for detecting leaked buffer writes between a first
2 consistency point and a second consistency point, the system comprising:

3 means for receiving ~~a write operation~~operation, wherein the write operation iden-
4 tifies a file for the write operation to be performed on;

5 determining that a volume storing the file has buffer leakage detection activated;

6 means for creating a data buffer associated with the write ~~operation~~operation;

7 and

8 in response to determining the volume has buffer leakage detection activated.

9 means for writing a buffer check control structure to a raw data buffer associated with the
10 data buffer.

1 21. (Previously Presented) A computer readable media, comprising:

2 the computer readable media containing instructions for execution on a processor
3 for the practice of a method of detecting leaked buffer writes between a first consistency
4 point and a second consistency point, the method having the steps of,

5 receiving a write operation directed to a file, wherein the write operation identi-
6 fies a file for the write operation to be performed on;

7 determining that a volume storing the file has buffer leakage detection activated;

8 creating a data buffer associated with the write operation; and

9 in response to determining the volume has buffer leakage detection activated.

10 writing a buffer check control structure to a raw data buffer associated with the data
11 buffer.

22. (Currently Amended) An apparatus configured to detect leaked buffer writes between a first consistency point and a second consistency point, the apparatus comprising:

a storage system to receive ~~a write operation~~operation, wherein the ~~write operation~~operation identifies a file for the write operation to be performed on;

a storage operating system to determine that a volume storing the file has buffer leakage detection activated;

a data buffer created to associate with the ~~write operations~~operation; and

a buffer check control structure to write to a raw data buffer associated with the data buffer, ~~in response to storage operating system determining the volume has buffer leakage detection activated.~~

23. (Previously Presented) The apparatus of claim 22 wherein the data buffer created to associate with the write operations comprises the buffer check control structure and the raw data buffer.

24. (Previously Presented) The apparatus of claim 23 wherein the buffer check control structure comprises a pointer to the raw data buffer.

25. (Previously Presented) The apparatus of claim 22 wherein the buffer check control structure to write to a raw data buffer associated with the data buffer further comprises the buffer check control structure to overwrite a portion of the raw data buffer.

26. (Previously Presented) The apparatus of claim 22 wherein the buffer check control structure to write to the raw data buffer further comprises the buffer check control structure to associate with the raw data buffer in a contiguous block of memory.

27. (Previously Presented) The apparatus of claim 26 wherein the buffer check control structure comprises:

one or more magic numbers; and

4 a consistency point number.

1 28. (Currently Amended) The apparatus of claim 27 wherein the one or more magic
2 | number values comprises a 64-bit value.

1 29. (Previously Presented) The apparatus of claim 27 wherein one or more magic num-
2 | ber values comprises two 32-bit values.

1 30. (Previously Presented) The apparatus of claim 27 wherein the consistency point
2 | number is configured to identify a current consistency point.

1 31. (Previously Presented) The system of claim 27 wherein the consistency point num-
2 | ber comprises a 32-bit value.

1 Please add new claims 32 *et al.*

1 32. (New) A method for detecting leaked buffer writes between a first consistency point
2 and a second consistency point, the method comprising:
3 receiving a write operation, wherein the write operation identifies a data container
4 for the write operation to be performed on;
5 determining that a volume storing the data container has buffer leakage detection
6 activated;
7 creating a data buffer associated with the write operation; and
8 in response to determining the volume has buffer leakage detection activated,
9 writing a buffer check control structure to a raw data buffer associated with the data
10 buffer, wherein the buffer check control structure has one or more values to uniquely
11 identify the buffer check structure and a value identifying the first consistency point.

1 33. (New) The method of claim 32, wherein the data container is a virtual disk or a file.

1 34. (New) The method of claim 32, wherein the first consistency point is the current con-
2 sistency point.
3

4 35. (New) The method of claim 32, wherein the step of creating the data buffer further
5 comprises:
6 creating the buffer check control structure and the raw data buffer.

1 36. (New) The method of claim 32, wherein the step of writing the buffer check control
2 structure to the raw data buffer further comprises:
3 creating the buffer check control structure; and
4 overwriting a portion of the raw data buffer with the buffer check control struc-
5 ture.

1 37. (New) The method of claim 32, wherein the step of writing the buffer check control
2 structure to the raw data buffer further comprises:
3 creating the buffer check control structure; and
4 associating the buffer check control structure to the raw data buffer in a contigu-
5 ous block of memory.